

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
14 April 2005 (14.04.2005)

PCT

(10) International Publication Number
WO 2005/033798 A2

(51) International Patent Classification⁷:

G03F

(21) International Application Number:

PCT/US2004/032638

(22) International Filing Date: 1 October 2004 (01.10.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/508,756 3 October 2003 (03.10.2003) US

(71) Applicant (*for all designated States except US*): **UNIVERSITY OF WASHINGTON [US/US]**; Office of Technology Licensing, 4311 11th Avenue Northeast, Suite 500, Seattle, WA 98105 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SCHWARTZ, Daniel, T. [US/US]**; 220 Interlake Avenue North, Seattle, WA 98103 (US). **WHITAKER, John, D. [US/US]**; 416 Summit Avenue East, #301, Seattle, WA 98102 (US).

(74) Agent: **DODGE, Ryan, E., Jr.**; Christensen O'Connor Johnson Kindness PLLC, 1420 Fifth Avenue, Suite 2800, Seattle, WA 98101 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

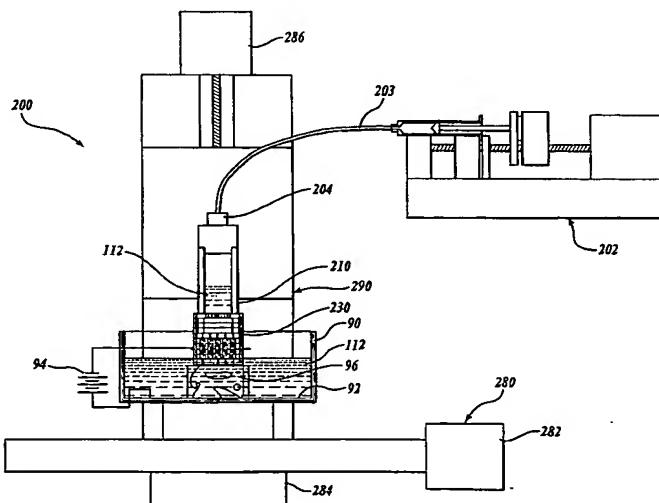
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: ELECTROCHEMICAL MICROMANUFACTURING SYSTEM AND METHOD



(57) Abstract: An electrochemical printing system (100, 200) and method are disclosed having a printer head (130, 230) that expels a small jet of electrolyte (112) towards a conductive substrate (92) to facilitate electrodeposition or removal of material from the substrate. In an embodiment of the invention the printer head includes a plurality of individually addressable electrodes (220), each electrode having a channel therethrough and wherein the electrodes are much larger than the electrolyte jet outlet. The printer head includes means for inhibiting cross talk between electrodes. For example, the printer head may include a plenum (241) and a nonconductive cross-talk inhibition layer (245) upstream of the electrodes. A resolution defining layer (270) having small apertures (271) is provided at the distal end of the printer head.

WO 2005/033798 A2



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.